**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Pd\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Project Introduction:

**As the world population continues to grow, resources like living space will become scarce. With the help of technological advances, humans are investigating living in areas that only a few years ago would have been considered uninhabitable, such as living underwater, in space, or in areas of extreme cold. “The Future is Ours” housing construction company is planning for the future and wants to purchase land that may be livable in the future.**

**The Future is Ours housing construction company has hired your research and development company to study an extreme environment and for which you will then design a man-made habitat. The goal is for humans to be able to live in this extreme environment.**

**As a member of a team you have been given these tasks:**

**• Describe the environmental conditions of your area. (Bubble Map)**

**• Identify the needs of humans living in this area. (Multi-Flow)**

**• Design a scale model and/or floor plan of the man-made habitat that will address these needs.**

**• Explain how your designed habitat addresses the needs.**

**• Describe transfer of matter and energy occurring within the habitat.**

**Extreme Conditions/Biome choices (Circle your choice):**

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* **Outer space**
* **Underwater (Marine, freshwater, or in a trench)**
* **Desert**
* **Polar Areas (Antarctica)**
* **Underground**
* **Upper atmosphere**

**You will use the Following Websites along with Thinking Maps to conduct your Research**

***Resources:***

The World’s Biomes: <http://www.ucmp.berkeley.edu/exhibits/biomes/index.php>

Surviving Extreme Conditions in Space: <http://www.esa.int/esaSC/SEMPT2V4QWD_index_0.html>

Living in Antarctica: <http://www.landcareresearch.co.nz/research/ecosystems/penguins/living_in_antarctica.asp>

**Research the characteristics of man-made habitats.**

Resources:

Description of biosphere: <http://isecco.org/papers/outline.html>

Biospherics: <http://www.biospherics.org/>

Biosphere 2: <http://www.b2science.org/>

NASA-Extreme Environment Mission Operations:

<http://www.nasa.gov/mission_pages/NEEMO/index.html>

Living and Working Conditions in Antarctica: <http://www.aad.gov.au/default.asp?casid=13374>

**You will use the following Maps to conduct research:**

1. **Create a BUBBLE map to describe the environmental conditions in the environment.**

* You will explain the potential problems some conditions may create for humans and describe possible solutions for each problem using a different color on your map

1. **Use a Multi-Flow map to identify the needs of Humans in your environment (event) and How you will address those needs.**
2. **Using your knowledge of the carbon cycle, photosynthesis and cellular respiration, Create a FLOW MAP showing the flow of carbon within your habitat.**

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**Remember… these are your tasks for the project:**

* Describe the environmental conditions of your area. **(Bubble Map)**
* Identify the needs of humans living in this area. **(Left side of Multi-Flow)**
* Explain how your designed habitat addresses the needs **(right side of multi-flow).**
* Describe transfer of matter and energy occurring within the habitat **(FLOW MAP).**
* Later…Design a scale model and/or floor plan of the man-made habitat that will address these needs.